

REPTILES AND AMPHIBIANS OF FORRESTDAL Lake NATURE RESERVE AND THE ANSTEY/KEANE DAMPLAND, WESTERN AUSTRALIA

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ABSTRACT

Forrestdale Lake Nature Reserve and its associated damplands are approximately 25 km south of Perth. It is an internationally recognised Ramsar wetland providing significant habitats for local and migratory birds. Opportunistic observations of reptiles and amphibians within Forrestdale Lake and the surrounding Anstey/Keane dampland have recorded 29 species of reptiles and 8 species of amphibian. Compared to other areas in the region, the Forrestdale Lake Nature Reserve and Anstey/Keane Road dampland have a high diversity of herpetofauna.

INTRODUCTION

Forrestdale Lake Nature Reserve (and proposed reserve extensions) is approximately 25 kilometres south of Perth and 15 kilometres from the coast. The area is bound by Commercial Road and the community of Forrestdale in the west and north, and Forrest, Stirling and Oxley Roads in the east and south. The total area of remnant vegetation within the nature reserve and proposed extensions is 501 ha.

Anstey/Keane dampland is located immediately to the north of Forrestdale Lake and is part of the Jandakot Regional Park. It is bound by Armadale Road in the south, Anstey Road in the east, Ranford Road in the north and Nicholson Road in the west. The

total area of remnant vegetation within the block is 311 ha. This block is linked to the Forrestdale Lake Nature Reserve via a bushland corridor over Armadale Road.

Forrestdale Lake Nature Reserve is recognised as an internationally significant wetland for local and migratory birds. The Anstey/Keane Road dampland is floristically the second-most diverse Bush Forever site on the Swan Coastal Plain (Giblett and James 2009). Both areas have vegetation that consist of damplands, herb-rich shrublands, shrublands in clay pans, mixed shrublands, Banksia/Jarrah woodlands and shrublands (CALM 2005). The lake also has *Melaleuca* sp. woodlands and *Typha orientalis* beds. Excluding

Forrestdale Lake (which is 245 ha), approximately 256 ha of remnant vegetation is present between the nature reserve and Anstey/Keane Road dampland. In the Forrestdale region species of reptiles and amphibians are poorly known and this paper aims to collate those recorded in previous studies and from my opportunistic records and comment on the significance of the area.

METHODS

Two methods were used to document the reptiles and amphibians of the Forrestdale Lake Nature Reserve and surrounding damplands, those previously reported in existing documentation and opportunistic records by me.

Documented Species

A number of management plans for Forrestdale Lake Nature Reserve and publicly available reports were reviewed for reptiles and amphibians recorded in the Forrestdale area and southern portion of the Swan Coastal Plain in the Perth area. These include projects undertaken in Brookdale, Jandakot, Oakford, Bibra Lake and Canning Vale/Ferndale areas.

Opportunistic Records

Opportunistic records can be divided into two categories of species records;

Species identified between Sep-

tember 1996 and September 1997, in an area of vegetation that was visited and hand surveyed every two to four days within a walking transect approximately 1 km long on the eastern side of Forrestdale Lake. Some historical dumped rubbish was present but the vegetation was intact and had been long unburnt. The vegetation consisted of Banksia Woodland, shrubland on clay pan, *Melaleuca* sp. woodland and damplands. Through the winter period much of the area became inundated therefore primarily aural observations were made.

From 1996 to 2013 visual and aural opportunistic observations were made in both Forrestdale Lakes Nature Reserve and within Anstey/Keane dampland. All species were recorded if identification was confirmed. All species recorded were identified via Bush *et al.* 1995, Wilson and Swan 2003 and Tyler *et al.* 2000. Nomenclature follows that used by the Western Australian Museum.

For the purpose of presenting data, the area was divided into two study areas, the Anstey/Keane dampland and Forrestdale Lake Nature Reserve.

RESULTS

Previous Reports

In 1986 a draft management plan for the area recorded five amphibians and 14 species of reptile (CALM 1986). In the finalisation of the draft manage-

ment plan an additional two amphibians and one species of reptile were recorded (CALM 1987). The 2005 Forrestdale Lake Management Plan identifies 7 species of amphibian and 15 species of reptile for the reserve (CALM 2005).

Bush *et al.* (1995) identified the potential for 77 reptiles and 16 amphibians to occur on the Swan Coastal Plain in the Perth Region.

Most data reported on reptiles and amphibians on the Swan Coastal Plain has been previously reported north of the Swan River with scattered study areas in the south. The closest reports to this study area are Brookdale (ATA 2006), Jandakot Airport (Bamford *et al.* 2002, How *et al.* 1996), Bibra Lake (Phoenix 2011, Reynolds 2008), Modong Nature

Reserve (Maryan *pers comm.*) and City of Canning (Maryan 1993).

These studies are presented below in Table 1 with numbers of the reptiles and amphibians recorded.

Total Numbers Recorded

In total this study identified 29 reptiles and 8 amphibians from Forrestdale Lake Nature Reserve and 19 reptiles and six amphibians from the Anstey/Keane dampland. These species are identified in Table 2.

The area shows good diversity in skinks with 12 species recorded, elapids with six recorded and pygopods with four recorded. Agamids and varanids account for 2 species each, while cheluids, geckonids and typhlopids recorded a single species each.

Table 1. Project sites close to this study area with reptiles and amphibians recorded.

Site	Reptiles	Amphibians	Project Area
Brookdale (ATA 1996)	15	5	1580 hectares
Jandakot Airport (Bamford <i>et al.</i> 2002)	23	3	Approx. 410 hectares
Jandakot Airport (How <i>et al.</i> 1996)	13	2	Approx. 410 hectares
Bibra Lake (Pheonix 2011)	21	6	4 km corridor between Bibra and North Lakes
Cocos Reserve (Reynolds 2008)	5	1	< 1 hectare
Modong Nature Reserve (Maryan <i>pers comm.</i>)	24	4	242 hectares
City of Canning (Maryan 1993)	33	9	6 suburbs in City of Canning

Table 2. Species Recorded in Forrestdale Lake Nature Reserve and Anstey\Keane Road Dampland.

Family	Genus	Species	Common Name	DEC (2005)	Forrestdale Lake Nature Reserve	Anstey/ Keane Damp- lands
Reptiles						
Agamidae	<i>Ctenophorus</i>	<i>adelaideensis</i>	Western Heath Dragon		X	X
Agamidae	<i>Pogona</i>	<i>minor</i>	Western Bearded Dragon		X	X
Cheluidae	<i>Chelodina</i>	<i>collieri</i>	Oblong Turtle	X	X	X
Elapidae	<i>Demansia</i>	<i>psammophis reticulata</i>	Yellow-faced Whipsnake	X	X	
Elapidae	<i>Echiopsis</i>	<i>curta</i>	Bardick		X	
Elapidae	<i>Elapognathus</i>	<i>coronatus</i>	Western Crowned Snake	X	X	
Elapidae	<i>Notechis</i>	<i>scutatus</i>	Tiger Snake	X	X	X
Elapidae	<i>Parasuta</i>	<i>gouldii</i>	Gould's Snake	X	X	
Elapidae	<i>Pseudonaja</i>	<i>affinis affinis</i>	Dugite	X	X	X
Eugongylidae	<i>Acritoscincus</i>	<i>trilineatus</i>	Western Three-lined Skink	X	X	X
Eugongylidae	<i>Cryptoblepharus</i>	<i>buchananii</i>	Buchanan's Snake-eyed Skink	X	X	
Eugongylidae	<i>Menetia</i>	<i>greyii</i>	Common Dwarf Skink	X	X	X
Eugongylidae	<i>Morethia</i>	<i>lineocellata</i>	Western Pale-flecked Morethia		X	X
Egerniidae	<i>Egernia</i>	<i>kingii</i>	King's Skink		X	
Egerniidae	<i>Tiliqua</i>	<i>rugosa</i>	Bobtail	X	X	X
Egerniidae	<i>Tiliqua</i>	<i>occipitalis</i>	Western Blue Tongue		X	
Gekkonidae	<i>Christinus</i>	<i>marmoratus</i>	Marbled Gecko	X	X	X

Pygopodidae	<i>Delma</i>	<i>grayii</i>	Gray's Legless Lizard	X	X	X
Pygopodidae	<i>Delma</i>	<i>fraseri</i>	Fraser's Legless Lizard	X	X	X
Pygopodidae	<i>Lialis</i>	<i>burtonis</i>	Burton's Legless Lizard	X	X	X
Pygopodidae	<i>Pletholax</i>	<i>gracilis</i>	Keeled Legless Lizard	X	X	X
Sphenomorphidae	<i>Ctenotus</i>	<i>australis</i>	Western Limestone Ctenotus	X	X	X
Sphenomorphidae	<i>Ctenotus</i>	<i>inornatus (fallens)</i>	West Coast Ctenotus	X	X	X
Sphenomorphidae	<i>Hemiergis</i>	<i>quadrilineata</i>	Two-toed Earless Skink	X	X	X
Sphenomorphidae	<i>Lerista</i>	<i>elegans</i>	West-coast Four-toed Lerista	X	X	X
Sphenomorphidae	<i>Lerista</i>	<i>lineata</i>	Perth Lined Lerista	X	X	X
Typhlopidae	<i>Anilius</i>	<i>australis</i>	Southern Blind Snake	X	X	X
Varanidae	<i>Varanus</i>	<i>gouldii</i>	Gould's Monitor	X	X	X
Varanidae	<i>Varanus</i>	<i>rosenbergi</i>	Heath Monitor	X	X	X
Amphibians						
Myobatrachidae	<i>Crinia</i>	<i>georgiana</i>	Quacking Frog	X	X	X
Myobatrachidae	<i>Crinia</i>	<i>insignifera</i>	Squelching Froglet	X	X	X
Myobatrachidae	<i>Crinia</i>	<i>glauerti</i>	Glauert's Froglet	X	X	X
Myobatrachidae	<i>Pseudophryne</i>	<i>guentheri</i>	Crawling Toadlet	X	X	X
Limnodynastidae	<i>Heleioporus</i>	<i>eyrei</i>	Moaning Frog	X	X	X
Limnodynastidae	<i>Lymnodynastes</i>	<i>dorsalis</i>	Pobblebonk	X	X	X
Hyllidae	<i>Litoria</i>	<i>adelaidensis</i>	Slender Tree Frog	X	X	X
Hyllidae	<i>Litoria</i>	<i>moorei</i>	Motorbike Frog	X	X	X

In amphibians myobatrachids represent 4 species, while limnodynastids and hylids have two species each.

Of the species in Table 2 several are considered locally uncommon or represent distributional boundaries of their range. These species include the Bardick (*Echiopsis curta*), Yellow-faced Whipsnake (*Demansia psammophis reticulata*), Western Crowned Snake (*Elapognathus coronatus*), Rosenberg's Monitor (*Varanus rosenbergi*) and Perth Lined Lerista (*Lerista lineata*). The latter species is also listed as Priority 3 by the Department of Parks and Wildlife.

The Western Limestone Ctenotus (*Ctenotus australis*), Perth Lined Lerista (*Lerista lineata*) and Western Three-lined Skink (*Acritoscincus trilineatus*) all have restricted distributions on the Swan Coastal Plain. The Oblong Turtle (*Chelodina colliei*) is distributed throughout the south west but has experienced population decline in the Forrestdale area, particularly in recent years due to the lake not maintaining water (Giblett 2006).

One species, the King Skink is believed to be a recent coloniser to the Forrestdale area with records only occurring post 1980's (David James *per comm.*). This species is likely to have been present in the local area and become more abundant.

DISCUSSION

How *et al.* 1996, found 11

amphibians and 39 reptiles over 17 localities on the Swan Coastal Plain. In 2000 How and Dell undertook additional studies of 34 remnants on the Swan Coastal Plain, and found 11 amphibians and 43 reptile species. Study areas ranged from 1 ha to 340 ha in size. Findings showed that size of areas studied reflected the number of species present (except for skinks) (How and Dell 2000). Reynolds 2008 undertook a study of Coco Reserve in Bibra lake and found only one amphibian and five reptiles persisting in <1 ha in size. Similar observations were made by Berry and Berry (2008), where one of their four study areas was only 0.75 ha in size and recorded only four lizard species compared to the remainder of their study areas that ranged 6.5 ha to 31 ha and recorded four frogs and 18 reptiles.

My study has 256 ha of remnant vegetation with good connectivity and holds eight amphibians and 29 reptiles. This shows that the larger and more intact the vegetation remnants are the greater the diversity.

CONCLUSION

This study identified 29 reptiles and eight amphibians in the combined Forrestdale Lake Nature Reserve and Anstey/Keane dampland. In comparison to other studies in the region this area has a rich reptile and amphibian assemblage. It should also be noted that all of the

projects identified in Table 1 involved trapping programs as well as hand searching. It is highly likely that additional species would be recorded if a systematic trapping program was undertaken. No burrowing snakes have been found and they are likely to occur in the dunes that surround Forrestdale Lake and within the Banksia Woodland areas. Other species such as the Turtle Frog and numerous small lizards may also be present. This would increase the known biodiversity of the area.

Reptile species have been reported to have declined in small remnant vegetation areas of the Swan Coastal Plain (How and Dell 2000). Major clearing on the Swan Coastal Plain is the main factor for species decline, with lower number of species persisting in fragmented remnant areas. These areas of fragmented habitat may be unable to support long term viable populations of some species (How *et al.* 1996, How and Dell 2000), as external pressures are increased such as fire (How and Dell 2000, Valentine *et al.* 2012), feral predation, species competition and habitat destruction (How and Dell 2000).

In my study the vegetation in the area is relatively intact with good areas for species to persist. This will need to be managed and where possible surrounding areas added into the reserve to increase the long term viability of the area.

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